

Figure 1 : Isolation of monokaryotic strain deficient in laccase activity.

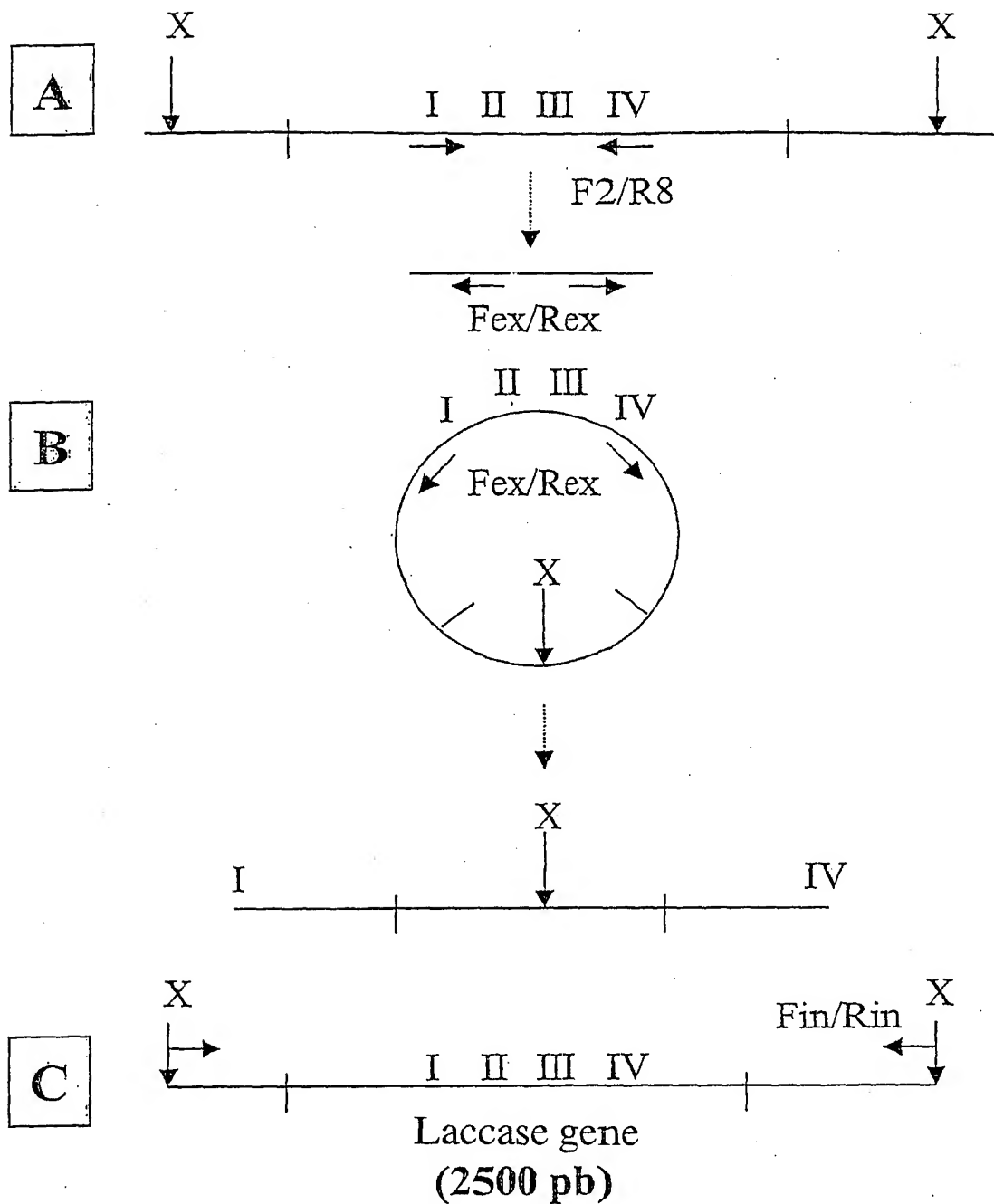


Figure 2 : Isolation of the gene coding for the laccase of *Pycnoporus cinnabarinus* laccase.

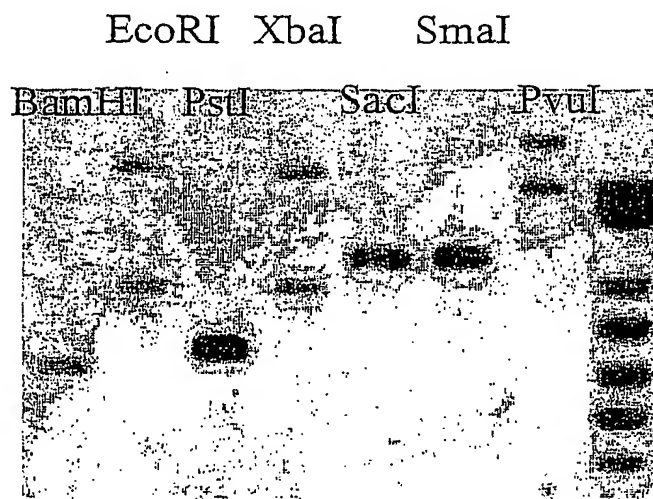


Figure 3 : Southern blot study of the gene coding for the laccase of *Pycnoporus cinnabarinus*.

CTGCAGACATCTGGAGCGCCTGTCTTTCCCTAGTATBAATGATGTCTGTCCGAGGTCTTGAAGACCGCTCGAGTCCCACTTGAGTTTATAGTAGGAC 100
 CTGTCCACCAARCCCTCTTTCTGATCATGTGAGGTTCCAGTCCCTCTTCTTCTGTCCTGCTCTCCCTCAGCGCTGTGGCCACGACGCAATAGGGC 200
 M S R F Q S L F F F V L V S L T A V A N A A I G P 25
 CTGTGGCGGACCTGACCCCTTACCAATGCCAGGTGAGCCCGGATGGCTTGGCTCGCGAGGCGCTGGTGAACGATACCCCTGCCCTCTCATCAC 300
 V A D L T L T N A Q V S P D G F A R E A V V V N G I T P A P L I T 58
 AGGCAATAAGGtatgtatgtctgtcgtccctcagagctacatacatctgtatccacaatcgttttagGGCGATCGATTCCAGTCAATGTCTATCGACCCAG 400
 G N K G D R F Q L N V I D Q 72
 F2
 TTGCAAAATCATACCATGTGTGAAACATCTAGTATTgtaagggttcagtttttccoga ctaccatgttattgaccatca ccaactcgtag CATGGGCACGG 500
 L T N H T M L K T S S I H W H G 88
 (I)
 CTTCCTTCAGCAGGACGAACTGGGCGGATGGTCCCGCTTCTGTAACAGTGTCCCATCGCTTCGGGCGCACTCGTT CTGTATGACTTTCAAGTTCCTC 600
 F E Q Q G T N W A D G P A F V N Q C P I A S G H S F L Y D F Q V P 121
 (I)
 GACCAAGCAGGtacgaattccgtacacgttttcattgctgcgcaactaaacccctcttactagGGACTTTCTGGTACCATAGCCATCTCTCCACGCAATA 700
 D Q A G T F W Y H S H L S T Q Y 137
 (II)
 CTGCGATGGTTTGAAGGGGGCCTTTCTGCTGCTACGACCCCAACGATCCTCACGCTAGCCTGTATGACATTGATAACGgtgagcagatcatggttatcgcaa 800
 C D G L R G P F V V Y D P N D P H A S L Y D I D N D 163
 tattgctccacttatgtcttcctggcatccagACGACACTGTCACTTACGCTGGCTGATTTGGTATCAGTTGCTGCCAAGCTCGGACCTCGCTTCCGgtac 900
 D T V I T L A D W Y H V A A K L G P R F P 184
 gtgtcaaatgtctacgagagatctcacatatacgtactagactcacttcgctgattacagATTGGCTCCGATTCAACCTTATCAATGGACTTGGTCGAA 1000
 F G S D S T L I N G L G R T 198
 CCATGGGCATAGCACCGTCCGACTTGGCAGTTATCAAGGTACGCGAGGCAAGCGgtatgtatggtatcactcgtacacattggtctgtatcatggtg 1100
 T G I A P S D L A V I R V T O G K R 216
 cttgtttccacagCTACCGCTTCCGCTTGGTGTGCTTTCTTGGCATCCGAACCATACATTGACGATTGATAATCACAATGACTATAATTGAGGGCGGA 1200
 Y R F R L V S L S C D P N H T F S I D N H T M T I E A D 245
 CTCGATCAACACTCAACCCCTAGAGGTTGATTCCAGATTTTTGGCGCGAGCGCTACTCTTCTGTTGgttagg tctgtaggtcctgtcatcaagtttg 1300
 S I N T O P L E V D S I Q I F A A Q R Y S F V 268
 cagacattccttagatacaccttttcaatgcagCTGGATGCTAGCGACCGGTGGATAACTACTGGATCCGCGCAAACCTGCCTTCCGAAACACAGGTT 1400
 L D A S Q P V D N Y W I R A N P A F G N T G F 291
 TTGCTGGGAATCAATTTGCCATCTGCGTTATGATGGCGCACCCGAGATCGAGGCTACGCTCTGTCCAGACTACTCCTACGAAGCCTCTGAACGAGGT 1500
 A G G I N S A I L R Y D G A P E I E P T S V Q T T P T K P L N E V 324
 CGACTTGATCTCTCTCGCCTATGCTGTGgtacgtgtctcaagaacctcgatcactaagtgcattgtcaactcatatggtgcatgacagCCTGGCAGC 1600
 D L H P L S P M P V P G S 337
 CCCGAGCCCGGAGGTGTGACAGCCCTTGAAGTGGTCTTCAACTTCTgtgagtactggtgcgcttccgttagcacagttcgaacaaagcctgataccat 1700
 P E P G G V D K P L N L V F N F 353
 gcagAACGACCAACTTCTTCAACAGGACCAACCTTTGTCCCGCGCTGTGCCAGTCTTGTACAAATCCTCAGTGGGGCGCAGGCGGCTCAGGAC 1800
 N G T N F F I N D H T F V P P S V P V L L Q I L S G A Q A A Q D 385
 CTGGTCCCGAGGGGCGGCTGTCTTCTCCAGCACTCGTCCATTGAGATATCTT CCCTGCCACTGCCAATGCCCTGGATTCCCCCTGCTTCC 1900
 L V P E G S V F V L P S N S I E I S F P A T A N A P G F P H P F H 419
 (III)
 ACTTGACCGGTgtacgtctgccttccctcgtctaaaggcggagtcgatatctgactcccatcacagCAGCGCTTCGCTGTCTGCTCGGAGCGCC GGGAGC 2000
 L H G H A F A V V R S A G S 433
 (III)
 AGCGTCTACAACACGACACCCGATCTTCCGCGAGCTGCTGACGACCGGCGAGCCCGGCGACA ACCTCAGATTCTGCTTCGAGACCAATAACCCAGGCC 2100
 S V Y N Y D N P I F R D V V S T G Q P G D N V T I R F E T N N P G P 467
 R8
 CGTGGTTCTCCACTGCCACATTGACTTCCACCTCGACGAGGCTTTGCTGTAGTCAATGCCGAGGACACTCCGACACCAAGGCGCGAAC CCTGTTC 2200
 W E L H C H I D F H L D A G F A V V M A E D T P D T K A A N P V P 500
 (IV) (IV) (IV) (IV)
 TCAGCGGTGGTGGGACTTGTGCCCATCTATGATGCACTTGRCCCGAGCGACCTCTGAGCGGGATTGTTACTGTGACCTGGT GTGGGGGGAACATGTGCA 2300
 Q A W S D L C P I Y D A L D P S D L 518
 GGGCTTTCATCGATCAGGGACTTTCAAGGTTGGCATAATATACCTCACGGCTGGATGTGACTCGGACAGCGTGTGGCGGTGGGTGTAACCTCTGCTGTATGT 2400
 TGA AAAAAGGATTTTATGTAGAACAATTTATGAGCAATCAGCAATCAATAGGATTTGTGTCGGTTTCGACGAAATGTCTTGTCTCCCTGCATTACTTTT 2500
 TGGAGAAATGGGTCCATGATACACATCATTGAGCTCTCAATACCAAGAGGATTACCCATGTCAATACCAAGATCATGTCTTCGCTGTCCGCAATGG 2600
 TCTCATGTTGCGTTGAGCAGATCGCAGTACGTTGAAAAGCGATTAGTAT TACATGCAACATGCAACATTGGAAGGGGGCATGACAGAGTTTCAGCTCGCG 2700
 TCAGTCCGCCAAGTAGCGACCTTTGCCGCACTGCTGTAACTGAACGTATGCTTCAGAACTCCGTGCTATCGAGAGCGATCGTGTACGTTCCGGGAT 2800
 AGATCCATTGATCCCCGCTCTGCTGCGCGCTGCGATGGCCCCGAGCGCTCACCGGACGCTTCGCGATCGCGCTTTTCTAGGGGCGAGGCCGTGTACCCG 2900
 CGTGTACGAGACGAGCTGCTTGTTCGGGTGGGGCGAAGGCCCGAAGGAGCCACTCACGAAGAGCAATGCGACGTARTCCGAGGTAGCCTTGCCTGTGTTA 3000
 GTCACACGACCGGAGAACGTGTGAGCGGCGCGAGGTGAGGAAGGCGCGCTCTTCTGACCGCGCTGTACGAGGTGCGGAATCGAATACGTGATGGCG 3100
 GTCTCCAAAGTCCGTGACGTTGGTGCATCGGCCCGCGCTGGAGCTGCCAAGAGAAATCGAAGGTGGTGAAGTGCAGTCCAAAGCCAAATTCGTA 3200
 GACCGCGCTGCCGGTGTACCACTTGTATGTACGCCCGGGTTTCGACGCGCTTGGGCGAAGGGT CATGTCACTCATCGGAACCTGATCAGCGTAGATGGCT 3300
 GGGTATTGGGTGATGGGCGGGCTCTCTGACG 3331

Figure 4 : Sequence of the gene coding for the laccase of *Pycnoporus cinnabarinus*

AGATCTCCGAACCAGAAATGCGATTGCGTTGAGGCCCAATTAAGAATAAAGCTGCGTCAGGGCAGCGACGTA
 TCTTGATCCATCATTTGACTCACCGGCATCGGCGTCAACACCAAAGCAAGCTCGTCCACCCATAGGCGTGCA
 CCGGCCGGCGTGCGCCATTGAGGTACATGAGCGGGGCGAAAGTCCGCCATTGGTAGCCCTGTCTGTGGACGCG
 CGGCGATGAACGTTTCCACCATTTGGGAAGAAACGTCTGCGGCCCATCATCCCTTCACCGGATGACAAGGC
 GCGCTGCGCCCTTTCGCGCAGAGGCCGGGGGCGACATGCACAGCGAAGGTCCGTTGCGGATGGGAAGCAGG
 CAATCAGTGGGTGTCTACGCCGCCACGATGGTGGGGAGCGTAGGCGCCCTCCATAAGGCGGCAAGCATC
 ATGATGCTCTCGGATTCGGGAAGCCTGGTGGGATGCTGGAGAGACTCTCTCCGAGAGACCAGTGTGGCAAC
 GTTCTGCGCTGGAAGACTTTAAAGTGAGTGTAGAAGGGCGAGCAGAGGACGATCATCGGATTGCAGGAACC
 ATCGGCATCCTCAGCCTGGGAAGGATGGCTCTTGGTAGACATTGCGGGAAGGTGTCTAGATGTGAGCGGGC
 TTCTTGGATGATCATGTCTGAACCTTTTCTGACCTCGTCTGGTGGTACGCATGGCAGGATTGAGCATTACGGT
 ATGCTCTCCATTCTAAACGATAACCCCTTCTTCAGGTTGGTCTCTCCATAGAGCGGCACGCTCTCAAGG
 CTTAGGCTATTACACCTCCTTCGCAACATCCCTATTACGGTGTCTGTAAGGAACGACTTGTCTATGGGATC
 ACATGAAGTGCAGCATACTGTTGCGCGGTCTCGCAGTACAGACGCTAGTACGGGAAGTGCACATCCAAGCGT
 TCAGTCACCACATGGCAAAAAAGCTGCACCATACTCTTTATGGTGAGTTGTTCTGTGAGTGGTATACAGTCAT
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 CCTTGTTCAATGAATATCATGGGTACATGTGGAGACGGTTAAACAGCGTTGACTGTGAATCCCTGGTGTGT
 GTTGGGCCGACAGGTACGTTGCAGGAACACCAATATCTCTTCGCGAGCCAGTTCTTTGCGAGCGGCACAG
 GCAGGCATCGCGCAACAGATCCAGCCATCCGGCCTCTGACATTGCGGGATACCTGAAGCCCTTCAGGTACGG
 AGCGAAGAGGTGGGCTCTCTGCAGCGATTGGCGGACGGATAGCTGTATTTCTCTCTCACCATTGGGAAGAT
 GTGAAAGGCTCCATCATATAGCGGCTCAACTCTACCTCGAATGTCCAACACGGCGGGAATACTTATTTATG
 TGGACAAGGCCGAGCTATGATAGCTTGTCTCCGAAGTTGGTAAGTCCCGCAATCTGCGGTTTCAGGCAACAGT
 CTGCGAAAAATAAGAAGAATATTGTAGGTGCGTGTAGGCGTATCGCCCAATGCGCACACAGGAGGCTTTA
 GGAGATGAAGCGCCCGTGAGCGGTAAGGGAGTTGGTTTACCGCCGCCCGACCGACTCTCTCTCTTTCCAG
 CATCATGTCTCGGCGCAAACCTTTACCTCTATTGACCAACTCCACGAGAAAGCAGGAACAGCTTCCTTGCTCT
 CTCATGACGTCCGCAATCCAGACCCTTAGCCGGTTTCGTTACTCATCGTTATCCCTGCCGCCATGGTAGTGGA
 GTCAGCCTGGCCAGTGCGTAGTCCCGTCTCTCTTGTCTGCACTAGAGAAGCCCCATGAGACAGCGTTTTTTGC
 TTTATTTCTGCTGTTTCTATAGACACCATAGGGGCAAACGATCCTGCACGCCAGAGGTATTGGGCTCGTCA
 GATTCCCAGTTTTTCTCCTCGGTCTGAATCGGCTGCACGGCAGATAAATCGGCCGGAATGCTATAGCCCTT
 CATAGCCCGCTATGAGAGTCGCAAAAGGCTTGTGAGTCAGGTCGGTCGAGTGGCTCTCACGAAGAGCGTCAA
 CTTGCGCGACAGCCGCTTTTCAGGGCAAGATAGATCCTCCCATCATCCCTACTGCGCTCAGCGCCGGTAC
 CGAACAATTGACTTACCGACATCCTCCGGGACGCGCAAATGCTGTTGACGGAACGTAATCCTCTTCGTCCC
 GCCTCTTTTCGCTCTCACGCATTCCGTGTGGTTGCGCGCAGCGCCGCTCATCAGGACCAGACCAGTCTCAAT
 GTCTGGTACCGGCACAATGGTGACACTGCGGCAACTGAGTAGGTCTGGTCACTCTGGTGCACCGTCTGCTTAC
 GCTGACCTTCGGGATACTGTCTGTCAGACATCTGGAGCGCCTGTCTTTCCCTAGTATAAATGATGTCTGTC
 CGCAGGTCTTGAAGACCGCTCGAGTCCCACTTGAGTTTTAGGTAGGACCTGTCCACCAAACCCCTCTTTCT
 GATCATG

Figure 5 : Sequence of the promoter sequence of the gene coding for the laccase of *Pycnoporus cinnabarinus* (up to the ATG coding for the methionine of the laccase).

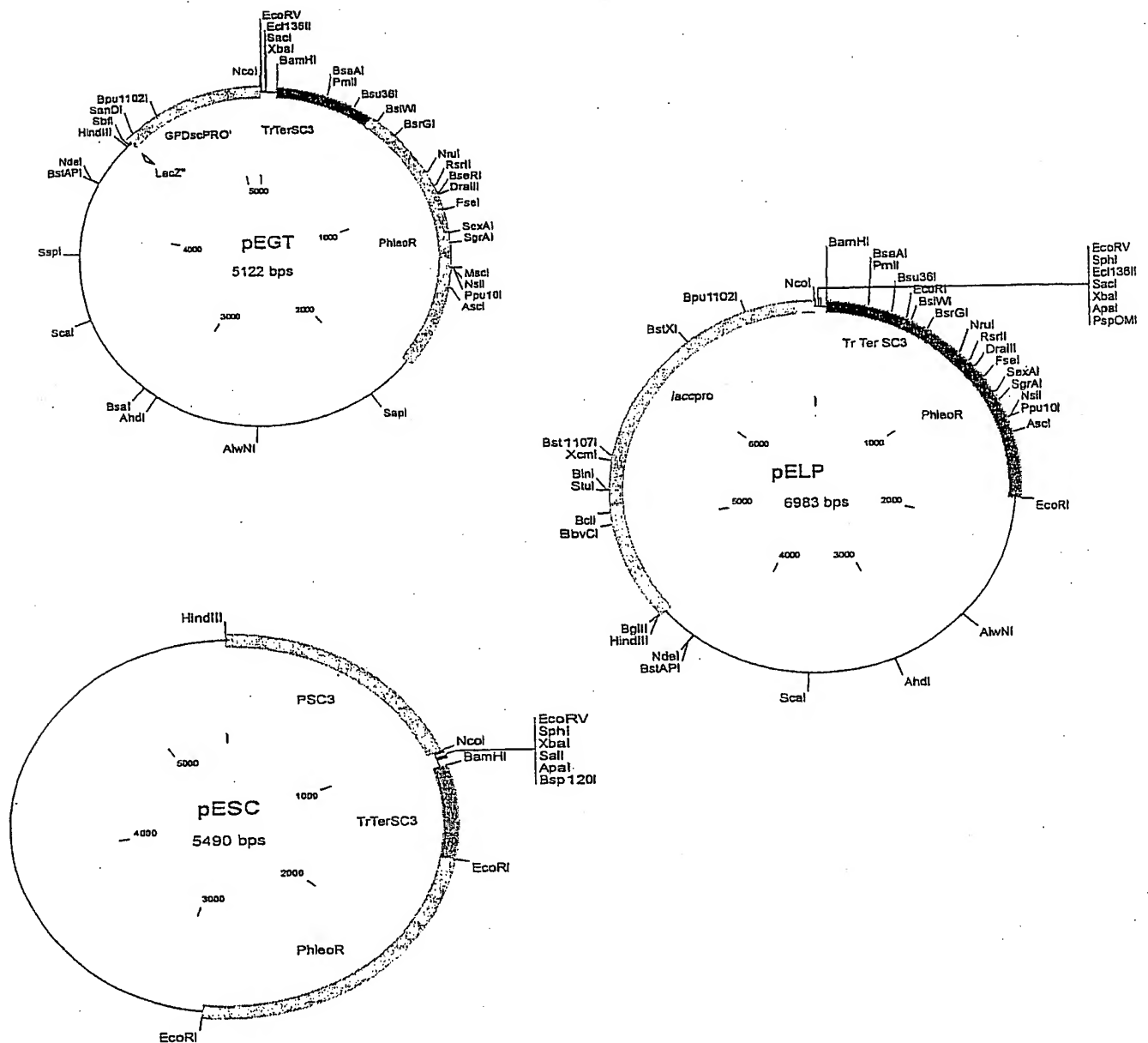


Figure 6 : Restriction map of the three expression vectors used for the production of laccase in *Pycnoporus cinnabarinus*.

CATGGGATATCGCATGCCTGCAGAGCTCTAGAGTCGACGCGGCCCGGTACCGCGGCCCGCCTTAAGACGCGTGGATCCGCAGGTGAAC
 GCGCCTATCGGTGGGATATTTCGGGCGACGGGAGCCTCGGCAATCTGAGCCTCGTTACTGCCTAGCAAATTCGGAATCCCTTCGATGT
 CATAGGGTCGCGGACAAGTGATCGTCTTGCTACATACTCCAAGGTGTTGACTCATTCCCTCGATAAATGAACATTGTTGTTGTTG
 TTCTCTATCCGCTCAGTCACGCGACCCACACGTGCATGGTTGAACCTTCGCCACGCAACAACCGCATGACGACATGGCGAACCTAAG
 TAAAGGCTGAGTCGTGGACTAAAGCACTCCACTTTACGGCGAGGA.TGCCAGTCTACGTCATGAATGAAGCCTCAGGTCCCGAAGTAA
 GGGGCTACAAAAGGAGGGTGAAAGGTGACGTTTTCTTACCATCTTCCACCTCCAGACCACCATGCCGGGAATTCCAGCTTGCT
 CAAAAGGTTCTGCCGTACGCGCGGAAATTCCTTCGAGGTGGCCCTATCGCATACATGACGACTTCAAAAACATCCATTCTATC
 ATTTTGGGATCGTACAATTATTAGACATGTTGTACAACGTTACATTCTTTCTCTTTTACTCTCCGGCCCCAGTCTATGTAGAGGTAA
 GTACAAGCGTCCAAAGGATCAGGCACCTAGAGCGCGCCGCTTGTCTCGCCGCTTAGAGCGCGCCGCTCTGCTTCGCCGCGTAGACG
 AGCAGGTTCGACACACGGCGGGAGTAGCCCCACTCGTTGTCGTACCAGGCAATGAGCTTCACGAAGCTCTTGCTGATCGCGATGCCG
 GGGATCGATCCACGCGTCTTAAGGCGGCCGCGGTACCCCTCGGACCCGTCGGGCGCGTCGGACCGGCGGTTGGTCCGCGTCGG
 TCAGTCTGCTCTCGGCCACGAAGTGCACGCGATTGCCGGCCGGTTCGCGCAGGGCGAACTCCCGCCCCACGGCTGCTCGCCGAT
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 CCACACCCAGGCCAGGGTGTGTCCGGCACCACTGGTCTCGGACCGCGCTGATGAACAGGGTCACGTCGTCCCGGACCAACCGGCC
 GAAGTCGTCTCCACGAAGTCCGGGAGAAACCGGACCGCGTCCGACCGCTCCGGCGACGTCGCGCGAGGCTGTGAGCA
 CCGGAACGGCACTGGTCAACTTGGCCATGCATGGTGATGGGCATTATGTGTGATGGGATGCGATGGGAGAGGGAAGTGCTCTGGATG
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 TGAACACATCGGCGCGCGCCTGGACTGCGCGCCATCTGCAAAATGCCAGGCCAGTCCCGTCCGGGCGCCACCACCAGCCCTGGTTCGAGT
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 TGGGCTGCGACCTGTCTACCTCTCATCTTAACCCCTCCGCGGCTTCGACGTCAGTTACTAATCTACACCGGAAGGCTCTCGCGC
 CACCCTCCGATCCCGAGCACGTTCTTACATGCCACAGCGTCAGAATTGAACACAATGCACGTCARATCAGATCCCGGGAATTCGT
 AATCATGGTCAATAGCTGTTTCTGTGTGAAATTGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAG
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 GCATTAATGAATCGCGCAACGCGCGGGGAGAGGCGGTTTGGTATTTGGCGCTCTCCGCTTCTCCGCTTCTCCGCTCACTGCTGCTCG
 GTCGTTCCGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAAGAA
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 AGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACAGGCGTTTCCCCCTGGAAGCTCC
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 ACGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTACGCCGACCGCTGCGCC
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 TCTTCAGCATCTTTTACTTTACACGCGTTTCTGGGTGAGCAAAAAAGGAAAGGCAAAATGCCGCAAAAAAGGGAATAAGGGCGAC
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 CGCCAGCTGGCGAAAAGGGGATGTGCTGCAAGGCGATTAAAGTTGGGTAACGCCAGGGTTTTCCAGTCAACGCTTGTAAACGAC
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 GAACACCATCGCGGACGGCCAGTGCTCTGGDCAGCTGAGCGTGCAATTGTGTTCAATTCTGACCTGTGGCATGTAAGGAACGTTGCTC
 GGGATCGGAGGGTGGCGCGAGAGCCTCTTCGGTGTGAGATTAGTAAGTGTACTGCAAGCCGCGGAGGGGTTAGGATGAGAGGTAG
 ACAGGGTCGACGCCCCAGGTGCGAGAAGGACTGCGAAGGACTGTTCTTCGACCGCGCACCTGCAATTGCGCGCATGGATAGAATAGA
 GCGTCGCCCTCGAGGGGGGACTCGACCAAGGGCTGGTGGGCGCCCGGAGGACTGGCTGGGCAATTGTCAGATGGCGCGCAGTCCAG
 GCCGCGCCGATGTGTTCACTCCCGTTTTGTCAAGTATCGATCGGATCTTTCGGGCGTGGGTATAAAGCGCGCCGCGCGCTCTCCCT
 CTTTCTCCAGCACTCCCATCCAGAGCACTTCCCTCTCCCATCGCATCCCATCACACAATAATGCCCATCAC

Figure 7 : Nucleotide sequence of the vector pEGT, containing the *gpd* gene promoter (4480-5112), a phleomycin resistance marker (507-1822) and the *sc3* gene terminator (71-507).

[illegible]

Figure 8 : Nucleotide sequence of the vector pESC, containing the sc3 gene promoter (1-1033), a phleomycin resistance marker (1540-2855) and the sc3 gene terminator (1104-1540).

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 CTATCGGTGGGATATTCGGGCGACGGGAGCCTCGGCAATCTGAGCCTCGTTACTGCCTAGCAAATTCGGAATCCCTTCGATGTCATAGGGT
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 TCAGTCACGCGACCCACACGTGTCATGGTTGAACCTTCGCCACGCAAACAACCGCATGACGACATGGCGAACCTAAGTAAAGGCTGAGTCGT
 GGAATAAAGCACTCCACTTTACGGCGAGGATGCCAGTCTACGTCAATGAAGCCTCAGGTCCCGAAGTAAGGGGGTACAAAAGGAGG
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 ACTCGTTGTCGTACCAAGCAATGAGCTTCACGAAGCTTGCTGATCGCGATGCCGGGGATCGATCCACGCGTCTTAAGGCGGCGCGGT
 ACCCCCTCGGACCCGTCGGGCGCGCTCGGACCGCGGTGTTGGTCCGCGCTCGGTCACTGCTCTCGGCCACGAAGTGCACGCAATGTTG
 CCGGCGGGTCCGAGAGGCGAACTCCCGCCCCACGGCTGCTCGCCGATCTCGGTCAATGGCGGCGCGGAGGCGTCCCGGAAGTTCGTG
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 TGATGGGATGCGATGGGAGAGGTGCTCTGGTGGAGTGGTGGAGAAAGAGGAGACGGCGGGCGCGCGCTTTTATACCCACG
 CCCGAAAGATCCGATCGATACTGACAAAACGGGATGAACACATCGGCGGCGCGCTGACTGCGCGCCATCTGCAAAAGCCAGCGAGTC
 CCGTCCGGCGCCACCACCGCCCTGGTCGAGTCCCGCTCGAGGGCGACGCTCTATTCTATCCATGCGCGCAATTGCAAGTGGCGGTGCA
 AGAACAGTCTTCGAGTCTTCTCGCACCTGGGTGCGACCCCTGTCTACCTCTCATCTTAACCCCTCCGCGCTTCGAGTACAGTTACTA
 ATCTCACACCGAAGAGGCTCTCGGCGCCACCCCTCCGATCCGAGTCACTTCTTACCTCCACAGCGTCAAGTGAACACAATGCACGTC
 ARATCAGATCCCGGGAAATTCGTAATCATGGTCAATAGCTGTTCTGTGTGAAATTTGTTATCCGCTCACAATTCACACAACATACGAGCC
 GGAAGCATAAAGTGTAAGCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTCCAGTCGGGA
 AACCTGTCGTGCCAGCTGCATTAATGAATCGGCCAACGCGCGGGGAAGGCGGTTTGCCTATTGGGCGCTCTCCGCTCTCTCGTCACTG
 ACTCGCTGCGCTCGGTGTTGCGGTGCGGCGAGCGGTATCAGTCACTCAAAGGCGGTAATACGGTTATCCACAGAATACGGGATACG
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 CCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACAGGCGTTTCCCGCTGGAAG
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 GGAAGCTAGAGTAAGTAGTTGCGCAGTTAATAGTTTGGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTGCTCAGCTCGTCTGTTGG
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 GATGCTTTCTGTGACTGGTGAAGTACTCAACCAAGTCATTCTGAGAA TAGTGTATGCGGCGACCGAGTTGCTCTTCCCGGCTCAATACG
 GGATAATACCGCGCCACATAGCAGAACTTTAAAGTCTGCTCTTAAATTAAGAAAGTGTCTTCCGGGGCGAAAACTCTCAAGGATCTTACGCT
 GTTGAGATCCAGTTCGATGACACATGCAGCTCCCGGAGACGGTCAACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCGCTCA
 GGGCGCGTCAGCGGTGTTGGCGGGTGTGCGGGCTGGCTTAACCTATGCGGCATCAGAGCAGATTGTAAGTGAAGTGCACCATATGCGGTG
 TGAATACCGCACAGATGCGTAAGGAGAAAAATACCGCATCAGGCGCCATTGCGCAATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGT
 GCGGGCCTCTTCTGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGTTTTTCCAGTCACG
 ACGTTGTAACAGCAGCGCCAGTGCCAAGCTTAGATCTCCGAACCAAGAAATGCGATTGCGTTTCAAGGCTTCCAGTCAAG
 GGGCAGCGAGTATCTTGAATCATCATTGACTCACCGGCATCGGCGTCAACACCAAGCAAGCTCGTCCACCCATAGGCGTGCACCGGC
 CGGCGTGCGCCATTGAGGTACATGAGCGGGGCGAAAGTCCGCCATTGGTAGCCCTGCTGAGCGCGCGCGATGAAACGTTTCCACCA
 TTGGGAAGAAACGTCTGCGGCCCATCATCCCTTACCGGATGACAAAGCGCGCTCGCGCTTTGCCGAGAGGCCGGCGGGCGACATGCA

Figure 9 : Nucleotide sequence of the vector pELP, containing the laccase gene (promoter 4457-6983) , a phleomycin resistance marker (507-1822) and the sc3 gene terminator (71-507) (continuation of the sequence on the following page).

CAGCGAAGGTCCGTTGCGGATGGGAAGCAGGCAATCAGTGGGTGTCCTACGCCGCCACGATGGTCGGGGAGCGTAGGCGCCCTCCCA
 TAAGGCGGCAAGCATCATGATGCTCTCCGATTCGGGAAGCCTGGTGCGATGCTGGAGAGACTCTCTCCGAGAGACCAGTGTGCGCAAC
 GTTCCTGGCCTTGAAGACTTTAAAGTGAGTGTAGAAGGGCGAGCAAGAGGACGATCATCGGATTGCAGGAACCATCGGCATCCTCAGC
 CTGGGAAGGATGGCTCTTGGTAGACATTTCGCGGAAGGTGTCTAGATGTGAGCGGGCTTCTGGATGATCATGTGCTAACTTTTCTGA
 CCTCGTCGGTGCTACGCATGGCAGGATTGAGCATTACGGTATGCC'TCCCATTCATAAACGATAACCCCTTCTTTCAGGTTGGTCATCTC
 CATAGAGCGGCACGCTCTCAAGGCCTAGGCTATTACACCTCCTTCGCAACATCCCTATTACAGGTGTCTGTAAAGAACGACTTGTCTAT
 GGGATCACATGAAGTGCAGCATACTGTTTCGCCGGTCTCGCAGTACAGACGCTAGTACGGGAAGTGCAGATCCAAGCGTTCAGTCACCA
 CATGGCAAAAAAGCTGCACCATACTCTTTATGGTGAGTTGTTTCGTGAGTGGTATACAGTCATTTCATGAGGGAATGCCACCGGATAGG
 GTGTGGCGGCCGCAATATTTCATCGCCTGGCAATAGTGCATGTGCGTTCCTTGTTCATGAATATCATGGGTACATGTGGAGACGGTTAA
 ACAGCGTTGACTGTGAATCCCTGGTGTGTGTTGGGCCGAACAGGTACGTTGCAGGAACACCAATATCTCTTCGGCAGCCAGTTCCTTG
 CGAGCGGCACAGGCAGGCATCGCGCAACAGATCCCAGCCATCCGCGCTCTGACATTCCGGATACCTGAAGCCCTTCAGGTACGGAGC
 GAAGAGGTGGGCTCTCTGCAGCGATTGGCGGACGGATAGCTGTA'TTCTCTCTCACCATTTGGGAAGATGTGAAAGGCTCCATCATAT
 AGCGGCTCAACTCTACCTCGAATGTCCAAACACGGCGGGAATACTTATTTATGTGGACAAGGCCGAGCTATGATAGCTTGCTCCCGAA
 GTTGGTAAGTCCCGCAATCTGCGGTTTACGGCAACAGTCTCGGAAAATAAGAAGAATATTGTAGGTGCGTGTAGGCGTATCGCCCAA
 TGCGCACACACGGAGGCTTTAGGAGATGAAGCGCCCGTGAGCGGTAAGGGAGTTGGTTTACCGCCGCCCGGACCGACTCTCTCTCTT
 CCCAGCATCATGTCTCGGCGCAAACTTTACCCTCTATTGACCAACTCCACGAGAAAAGCAGGAACAGCTTCTTGTCTCTCATGACGTCC
 GCAATCCAGACCCTTAGCCGGTTTCGTTACTCATCGTTATCCCTGCCGCCATCGTAGTGGAGTCAGCCTGGCCAGTGCGTAGTCCCGTCT
 CTCTTGCTGCACTAGAGAAGCCCCATGAGACAGCGTTTTTTGTCTTATTTCTGCTGTTTCTATAGACACCATAGGGGCAAAACGATCCTG
 CACGCCCAGAGGTATTGGGCTCGTCAGATTCCCAGTTTTTCTCCTCGGTCTGAATCGGCTGCACGCGAGATAAAATCGGCCGGAATGCT
 ATAGCCCTTCATAGCCCGCTATGAGAGTCGCAAAAGGCTTGTCAGTCAGGTGGTTCGAGTGGCTCTCACGAAGAGCGTCAACTTCGCG
 CGACAGCCGCTTTACGGGCAAGATAGATCCTCCCATCATCCCTACTGCGCTCAGCGCCGGTACCGAACAATTGACTTACCGACATC
 CTCCGGGACGCGCAAAATGCTGTTTCGACGGAACGTAATCCTCTTCGTCGCCGCTCTTTTCGCTCTCACGATTCCGTGTGGTTTCGCGCA
 CGGCCGCTCATCAGGACCAGACCACTCTCAATGTCTGGTACCGGCACAATGGTGACACTGCGGCAACTGAGTAGGTCTGGTCACTCTG
 GTGCACCGTTCGCTTACGCTGACCTTCGGGATACTGTCTGCAGACATCTGGAGCGCCTGTCTTTCCCTAGTATAAATGATGTCTGTCC
 GCAGGTCTTGAAGACCGCTCGAGTCCCACTTGAGTTTTAGGTAGGACCTGTTCTCCACAACCCCTCTTTC

Figure 9 : Nucleotide sequence of the vector pELP (continuation), containing the laccase gene (promoter4457-6983), a phleomycin resistance marker (507-1822) and the sc3 gene terminator (71-507).

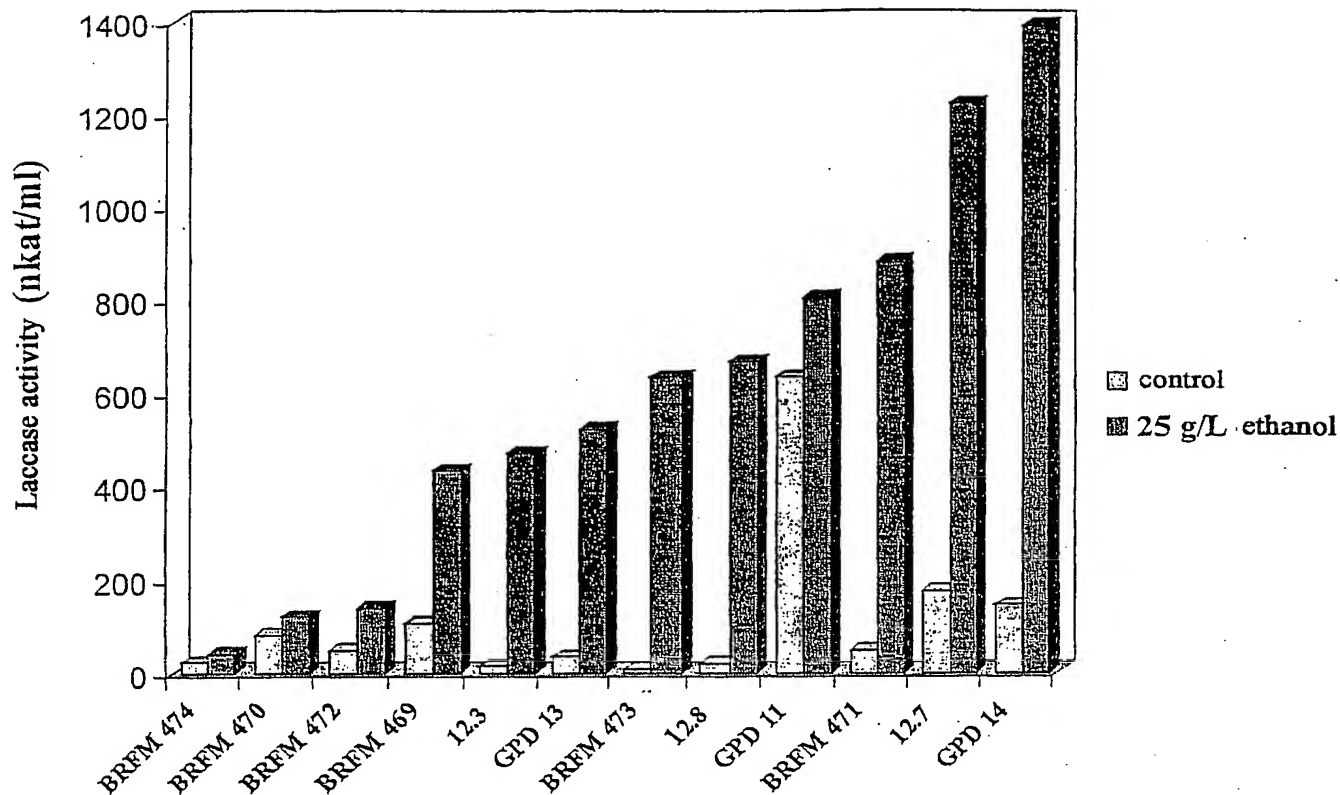


Figure 10 : Results of production of the transformants having the most significant activities. The culture was carried out with or without (control) ethanol.

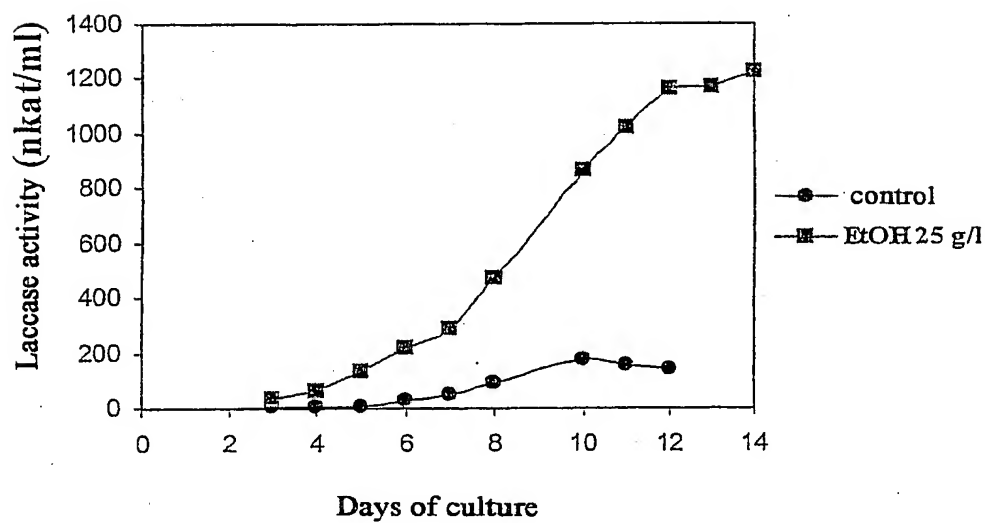
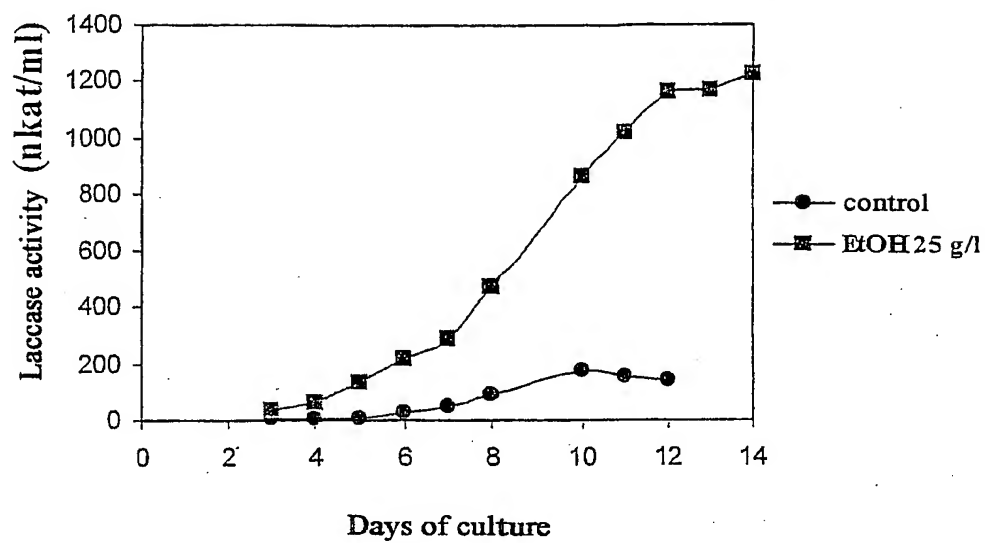


Figure 11 : Monitoring of the laccase activities of the transformants GPD 14 and 12.7 as a function of time with or (control) without ethanol

Figure 12